

**Response to Office Action, Notice of Noncompliant Amendment; re.  
Preliminary Amendment to Specification Dated 17 Feb 2004**

Please enter the following amendments to the specification as submitted in preliminary amendment form on 17 Feb 2004. This amendment is formatted by the method of "paragraph replacement" per CFR 1.121. Only amended paragraphs, numbered as per the original filing, are presented here for amendment. No new paragraphs are submitted.

[0001] The present application claims the benefit of priority to U.S. Provisional Patent Application Ser. No. 06/0533564 filed 31 December, 2003 (31-12-2003) and US Patent Application Ser. No. 10/771672, filed 3 February, 2004 (03-02-2004).

[0002] Hand-propelled vehicles for transporting goods are the subject principally of US Class 280. The combination described here is a hybrid inter-convertible shopping basket and wheeled shopping vehicle. This hybrid is specially adapted for a unique method of shopping, which also forms the basis for its sale and use in business as a specially adapted tool for merchandising.

[0009] Prior efforts to solve one or another facet of these problems from the perspective of the shopper have sought to offer customized shopping carts, some with convenience features designed to carry purchases from store-to-home without boxing at the checkstand. Others are designed to support shopping paper bags or plastic sacks and roll along a couple inches off the floor. Some of these carts can even fit in a pocket, but all must be purchased and maintained by the shopper. Various improvements have

resulted in smaller, more maneuverable shopping carts, carts with multiple shelves, plastic mesh baskets, carts that nest in various ways, and shopping baskets that fold up for storage, or are disassemblable and towed on wheels like a child's wagon (US 5906383 to Cortes). One recent commercial introduction is a wheeled cart chassis with detachable basket, so that shoppers entering the store can select either the basket alone or the cart-with-basket. These products, however, fail to supply flexibility at the critical moment, when the hurried shoppers who have selected a shopping basket suddenly and oftentimes ruefully realize that the basket is no longer adequate for their shopping needs (US 5865449 to Castaneda).

[0010] Therefore, in practice, the existing shopping hardware solutions result in an inherent level of missed sales. While it might at first seem that the consumer would pay for a solution that offered shopping convenience and flexibility, in fact it is more likely the merchant who has the true incentive. The market has shown that it is the merchant, not the consumer, who typically provides the shopping hardware. By redefining the problem in this way, it becomes apparent that improved shopping hardware is needed to recover lost sales, a solution ~~[[the]]~~ that requires the shopping basket to be redesigned so that heavy and bulky loads can be transported, even when they cannot be carried in the basket.

[0011] While shopping baskets offer a convenience for the hurried shopper, their use often results in lost sales for the merchant who supplies shopping baskets to customers. The solution disclosed here is a lightweight shopping

basket (a custom that the shopping public is already familiar with) but one with an innovative combination, having ~~in addition to a handle~~ a mechanism whereby pulling on a lever, leg, pressing a button, or some other means, triggers legs and wheels to ~~automatically~~ deploy from the basket. In this solution, the hybrid shopping basket/vehicle-on-wheels then supports itself and can be rolled at a generally convenient height. Thus the solution offers both the convenience of a carryable basket and the option of a wheeled ~~"hybrid shopping basket/"~~ "shopping vehicle" when the need arises, ensuring that shoppers are not discouraged from buying more than they can readily carry. The hardware disclosed here is specially adapted to the needs of merchants as a sales tool, and is also useful to shoppers for its flexible shopping convenience.

[0012] A mechanical combination is disclosed having four basic elements: a lightweight shopping basket ~~with handle or strap~~ for carrying, ~~carriage~~ legs ~~[[with]]~~ and wheels, a mechanism for releasably securing the legs under the basket when not in use, and a triggering mechanism or means for releasing and deploying the legs so that the vehicle can be wheeled at a convenient height instead of carried, when desired. These hybrid shopping basket/vehicles are carried by ~~the~~ a handle or strap, but may be interconverted at the customer's signal to a wheeled basket~~[[s]]~~ vehicle while shopping. The mechanism whereby the legs are deployed is preferably automatic once the signal is given. On wheels, these baskets are generally freestanding, level, elevated to a convenient height, and can be rolled from place to place. These hybrid shopping basket/vehicles, termed here "shopping aids", are specially adapted for a unique method

of selling merchandise and for a unique method of shopping wherein the two aspects of the combination are used interconvertibly: with wheeled legs deployed when the basket is rolled; with wheeled legs undeployed when the basket is carried. Market owners who supply hardware to assist their customers in shopping are the preferred customers for hybrid shopping basket/vehicles, but the devices may also be sold directly to shoppers for personal use.

[0015] To more distinctly and clearly describe the invention, shopping baskets are differentiated from shopping carts, shopping trolleys and shopping wagons or prows. "Shopping basket" shall refer to any lightweight basket intended to be hand-carried for shopping, typically equipped with one or two basket handles or a strap. Typical weights of shopping baskets are less than 12 pounds (5.44 kg) at most. Shopping baskets as a class are often relatively small. "Shopping cart" shall refer to such devices having receptacles (commonly also called baskets) as are intended to be pushed along on a supporting chassis which bears the usually considerable weight of the larger receptacle or basket, often greater than 20 pounds (9.07 kg). In some designs, the basket of a shopping cart may be detachable from the wheeled chassis, such as for cleaning (as in US 5,791,666), but the wheeled chassis is not intended to be carried along under the basket by a shopper. Rather the reverse, the basket is supported upon the chassis when the two are combined in the form of a shopping cart with the express intent of relieving the shopper of carrying anything. The nature of the handles also differ. Handles of shopping carts are adapted for pushing; shopping

basket handles or straps are adapted for carrying. This can be readily observed by comparing US 3,999,774 to Rehrig and US 4,953,878 to Sbragia. In the latter, one device employs both manner of handles.

[0017] One class of wheeled shopping vehicles, termed here "shopping wagons", consists of a platform or frame mounted on one or two axles and often a handle. These wagons generally are pulled relatively low to the floor and support a bag, sac, mesh container, fence, box or other ~~flexible~~ disassemblable or foldable receptacle for carrying things. The receptacle can be of a disposable material, as of a plastic bag fitted over a supporting frame in the manner of a trash bag. Paper bags are also sometimes suggested as receptacles to be mounted on a wagon. These wagons are sometimes foldable, allowing a shopper to bring one to a market in a pocket or under an arm, and to then unfold the wagon in the market before shopping. In these configurations, the devices are suitable for shopping only if unfolded. Another variant offers some means of transferring the wagon or a detachable basket to and from an automobile (see for example US 5,649,718 to Groglio). These designs as a class have had limited commercial success despite many, many years of improvement. The cumulative art is voluminous: US 1,081,221; 2,531,856; 2,812,188; 3,190,673; 3,197,225; 4,185,848; 4,492,388; 4,596,387; 4,953,878; 5,865,449; 5,906,383, and 6,328,329 are representative. ~~Generally,~~ These wagons or carts are intended to be owned by the shopper, as taught for example explicitly by de Wit (US 4,492,388).

[0019] It should be obvious that "wheel" as used herein refers to single axle wheels, rollers, tires, yoked wheels, and to casters, casters having rotational degrees of freedom around two generally perpendicular axles or axes, and that the inclusive term "wheel" is not limited by the material or mode of construction (being solid, composite or hollow), the tread width, diameter, or the nature and configuration of the axle(s) or bearings, if any. "Wheel" is synonymous with "wheel assembly".

[0023] Another embodiment provides a handle or handles for a hybrid shopping basket/vehicle which are specially adapted for both pushing (or pulling) the hybrid shopping basket/vehicle like a cart and for carrying the hybrid shopping basket/vehicle like a basket. Alternatively, two functionally distinct handles may be supplied, one of which may be a strap.

[0024] Another optional embodiment provides a means for detachably attaching an "off-the-shelf", commercially-available shopping basket, of which there are many brands, to a proportionate undercarriage having retractable deployable wheeled carriage legs, thus providing a device and kit for conversion of a shopping basket to a shopping ~~[[aid]]~~ vehicle. The undercarriage subassembly may be sold separately or with a shopping basket, and may be sold as a kit for self-assembly. When sold together as a kit, the undercarriage optionally may be an integral molded element of the base of the basket.

[0026] In common embodiments, these and other needs are met by supplying the customer with a combination, or hybrid~~[[,]]~~ shopping ~~basket/vehicle~~ ~~of a~~ basket and vehicular elements

including legs and wheels, with optionally an undercarriage, frame or running gear attached to or substantially part of the base of the shopping basket. The shopper carries what appears to be an ordinary shopping basket, but the basket is modified with triggerably releasable and deployable wheeled carriage legs, wheeled legs that can be conveniently brought down, stood up or "deployed" on demand, even when the basket is full, most preferably automatically. At the shopper's touch, for example, the legs are deployed and locked, and the freestanding, level, stably supported basket can then be rolled or wheeled from place to place or in any direction so that the shopper is relieved of carrying it and any contents. The undercarriage may be diminutive, forming part of the base of the basket, where it serves only as a point or points of attachment for the carriage legs.

[0028] Optionally, a body member is used to automatically or semi-automatically deploy the legs. The shopper triggers release of the legs most commonly while carrying the basket by a handle or strap. In preferred embodiments, the legs can be deployed with a single hand while ~~holding~~ carrying the basket ~~handle~~ with the other. The use of a knee, thumb or index finger are other options. In some embodiments, the shopper must not only release the legs, but also deploy them manually.

[0030] From these and other embodiments of hybrid shopping basket/vehicles, the paradigm of shopping as customarily experienced ~~[[is]]~~ acquires a new dimension: that is, not only is new hardware for shopping introduced, but also a new method of shopping is made possible. Some shoppers who picked up a basket to carry into the store out of

convenience or expediency need no longer regret the decision, and may instead choose to roll their hybrid shopping basket/vehicle to the checkstand. Other shoppers, given the convenience of the hybrid shopping basket/vehicle, will choose to continue shopping even after the basket is too full to readily carry by hand. The hybrid shopping basket/vehicle is specially adapted for this unique method of shopping, and linked method of business, yet offers no impediment to those who wish to continue to use the device as a shopping basket without making use of the wheels and legs. Methods of business in which a composition of the invention is employed in combination with a spreadsheet for controlling inventory, sales performance, or customer lists, include sales, leasing, repair, cleaning, assembly, retail and wholesale business models.

[0040] Figure 8 is a flat plan view from the underside of the assembled mechanism illustrated in exploded view in Figure 4, showing the legs in a deployed, legs-down configuration. The legs are not visible, ~~lying~~ standing beneath the casters in this view.

[0041] Figure 9 is a flat plan view from the underside of the assembled mechanism illustrated in exploded view in Figure 4, but showing the legs in a undeployed, legs-up configuration. Note the position of the casters on the legs.

[0044] Figure 12 shows a hybrid shopping basket/ vehicle, but the legs are compound, having pivoting "knees" with multi-partite segmented legs that fold back on themselves. This embodiment is also unique because it features a lower shelf. A



simplified mechanical train is possible because the lower shelf has the effect of coordinating the motion of the legs. In one embodiment, springs in the knees are used to lock the legs against chocks in the fully extended configuration.

[0045] Figure 13 develops the embodiment shown in Figure 12.

These embodiments demonstrate ways whereby a hybrid shopping basket/vehicle can be accommodated to taller individual users.

In the upper view, ~~the increased height is achieved with a telescoping handle is shown.~~ In the other of ~~[[this]]~~ these embodiments, the height of the basket, again with compound legs, exceeds the length of the base. ~~In the lower view, t~~The basket itself is raised to a height about double the length of the base by means of nested compound legs. These legs still fold into a space no larger than the footprint of the basket, permitting nesting of the hybrid shopping basket/vehicles in a vertical stack. ~~Again a~~ A lower shelf is employed to increase the useful area of the vehicle. Multiple shelves are possible by repeating this theme. ~~These embodiments demonstrate ways whereby a hybrid shopping basket/vehicle can be accommodated to taller individual users.~~

[0046] Figure 14 is a rendering in perspective of an alternate embodiment having three legs in a scissors-leg configuration. While the vehicle shown here again has four wheels, embodiments with alternate ~~[[number]]~~ numbers of wheels, for example three or even eight, are possible. Small casters are again shown, but larger wheels useful for rough surfaces are also possible. The release or trigger mechanism has also been modified for end access. The range of potential embodiments is not limited to the selected embodiments illustrated here.

[0047] Words and phrases used here take their meaning as consistent with usage as would be apparent to one skilled in the relevant arts or by reference to a contemporaneous edition of Webster's unabridged English dictionary, unless another meaning is explicitly defined herein. When cited works are incorporated by reference, any meaning or definition of a word given in any incorporated reference that conflicts or embellishes the meaning as used here shall be considered idiosyncratic to said reference and not ~~applicable to~~ the meaning of the word as used in the present disclosure.

[0048] Automatic - a mechanical device that acts in a preset way without human effort or intervention after an operator triggers the action. The operator, by triggering a switch, clasp, lock, catch, button, lever, pin, or other release mechanism, sets in motion ~~a series of~~ one or more "automated" movements of a machine.

[0049] Deploy - to open up by releasing or unfolding, to place in service, to cause the legs of an hybrid shopping basket/vehicle to extend and assume a "legs-down" configuration wherein the basket becomes freestanding. Deployment may be automatic, semi-automatic, or manual. The opposite of deployment is "undeployment": verb form, "undeploy", as in "the boxboy undeployed the hybrid shopping basket/vehicle and gave it to the next customer to carry".

[0051] Generally - an expression of inexactitude, the condition of being more or less, approximately, or almost, where ~~a small difference is~~ variations would be insignificant, obvious, or of equivalent utility, and further indicating the existence of obvious exceptions to a norm or rule.

[0052] Handle - that part of a basket or cart which is held, turned, lifted, pulled, gripped, or pushed by the hand of the user. Handles may be specially adapted for pulling (wherein they are often hinged), for pushing (wherein they are generally made fixed in orientation at an inclination toward the pusher), or for lifting and carrying, where the handle must support the basket regardless of how a load in the basket is distributed. Basket handles for carrying are most commonly appended perpendicularly from the level basket, or are hinged so as to become plumb when lifted. Pairs of pivoting handles separated at the base are grasped in one hand so that the handle struts form a triangular cross-section, stabilizing the position of the basket level to the floor. Double-handled shopping baskets are designed in common usage so that the two handles fold out flush against the end lip of the basket, out of the way, as is necessary for baskets that are nested in vertical stacks. Some handles are extensible, often with telescoping sections, and may have triggers or other controlling means embedded in the handle for convenient access. Handles may be specially adapted for dual use, such as by providing a detent when a ~~pivoting~~ handle is ~~rotated to~~ positioned at an angle or length preferable for pushing or pulling, but releasable so that the same handle can swing to an upright or plumb position,

shortened if necessary, and be readily gripped for carrying. Handles operated for carrying in pairs may also be specially adapted for pushing when not used in carrying, and in those kind of embodiments, generally only one handle is used at a time for pushing. Some handles are adapted as straps for carrying over an arm or shoulder; in these embodiments, an alternate handle may be provided for pushing or pulling the basket shopping vehicle, if desired.

[0054] Leg - also "carriage leg" or legs, a rigid supporting member having a length substantially greater than its thickness, as in "standing on two legs". In addition to bent, cambered and straight legs, styles of legs can be described by reference to the alphabet, there being "I"-legs, "L"-legs "S"-legs, "T"-legs, inverted "T"-legs (illustrated in Figure 14), "U" legs, etc.. Paired legs include members such as the "H" leg, which is joined by an intermediate crosspiece, and the "X", or scissors leg (illustrated in Figure 14), most commonly having a pivot at a ~~[[a]]~~ joint intermediate on the legs, as in a collapsible ironing board. There are also telescoping legs and compound legs, such as legs with "knees". A ~~bi-partite~~ multi-partite leg that folds back upon itself at ~~a knee~~ knees is termed a compound leg. Compound legs with a single knee are illustrated in Figures 12 and 13. ~~Each~~ Any given leg may have attached wheels numbering ~~0,1,2,3,4,5 or 6~~ 0, 1, 2, 3, 4, 5 or 6, the wheels typically being in pairs or separated on a common axle, for example a "C" leg may have 2 wheels or 2 pairs of wheels mounted on the lower transverse member at each side. Centrally mounted wheels are also useful. By increasing the diameter of the wheels, more rough floors can be traversed. By the use of softer

tread, traction may be increased, while quieting the vehicle. Legs with a positive camber may be more stable if needed. In some embodiments, the wheels are not mounted on the legs at all, but are instead affixed on an inferior aspect of the shopping vehicle, for example a lower, deployable shelf.

[0055] Leg configurations - of which there are two here, "legs-up" and "legs-down" as shown in Figure 2, refer respectively to a configuration of the legs of a hybrid shopping basket/vehicle: a) legs-up - undeployed, generally parallel to and closely secured under the base of the basket, and b) legs-down - deployed, standing substantially erect, stably and elevatingly supporting the shopping basket at a convenient height, as in "free-standing on its two legs". By definition, a hybrid shopping basket/vehicle deploys on its legs at a convenient height for the shopper to push or pull, steer the basket, and to reach the contents of the basket. In the examples shown here, a convenient height, with wheels contacting a generally level and firm floor or slab, is defined as - the base of the basket is stably supported about knee to waist height of the typical customer, more preferentially between 12 to 45 inches (114.3 cm), most preferentially between 16 to 36 inches (40.64 to 91.44 cm) above the floor, these ranges being adjustable and depending on the median or average height of the customers using the baskets, which may vary from place to place or store to store, and also depending on the sort of merchandise being sold. In one embodiment, the height of the base of the shopping vehicle, when supported freestandingly on its legs on a generally level and firm floor or slab, is substantially equal to the length of the basket at its base. Embodiments whereby this height may be exceeded are provided here, however.

[0066] Means for releasably securing - encompasses lock-and-key mechanisms, trigger catch, cocking mechanisms, clasps, clips, levers, latches, pawls, ratchets, detent pins and balls, both spring-loaded and mechanically operated, also ~~+~~Velcro® and magnets, as may be used to hold the legs in a legs-up position when a hybrid shopping basket/vehicle is carried or nested. Mechanisms for securing the legs can also include ~~be assisted~~ a spring sufficiently stiff to hold the legs up. ~~[[, or]]~~ Or conversely, a spring can be used to assist in releasing and deploying the legs. Means for releasably securing are illustrated for example in Figures 3, 4, 8, 9, 10 and 11.

[0068] Means for triggering - encompasses the turning of a key, the pressing of a button, the pulling or pushing on a lever from side to side, up to down, or from in to out, the deformation of a gripping surface as in a snap release, the pulling of a trigger, latch, or handle by a digit, positive or negative pressure releasing a detent as of a clasp, lock, catch, cable, winch, pulley, clip or pin, whereby a signal to initiate a mechanical operation is given by an operator. Means for triggering are illustrated for example in Figures 3, 4, 8, 9, 10 and 11.

[0071] Means for locking [legs deployed] - encompasses impinging surfaces such as chocks, locking or extensible struts, flying crosspieces with offset pivotable struts, keys, detent pins, ~~lock-in-place~~ spring-loaded balls ~~bearings~~, clamps, and their corresponding receiving surfaces such as stubs, keyholes, and detent receivers; also ~~checks~~ and magnetic attachments. Other illustrated

means for locking are shown for example in Figures 3, 9, and 11. Legs with a positive camber are potentially self-locking in the legs-down position. Means for locking in the legs-down configuration are distinguished from means for detachably attaching, which applies to the legs-up position.

[0072] Hybrid shopping basket/vehicles and their methods of use have multiple embodiments and variants, and more than one presently preferred embodiment are illustrated in the drawings. These are discussed in greater detail hereafter. It should be understood that the disclosures here are to be considered exemplifications of the invention in its presently preferred and most presently preferred embodiment, and are not intended to limit the claimed invention or any improvements upon the claimed invention to the specific embodiments illustrated here, ~~which may be subject to further development in varied directions.~~

[0073] With reference to the figures, Figure 1 shows a sketch of a shopper carrying what appears to be a full shopping basket. The shopper stops, pulls a releasing handle, and carriage legs with casters or wheels deploy from the beneath the basket, whereby the shopper is able to roll the shopping basket comfortably, steering by grasping the basket's handle or other means. The hybrid shopping basket/ vehicle is a combination, modified shopping basket having vehicular elements including legs and wheels. Also embodied are means for releasably securing the legs and wheels against the base of the shopping basket when not in use, and means for triggering release and deployment of the legs when the shopper chooses. When released from a

securely held configuration under the basket, the legs pivot from the legs-up to the legs-down position. This pivot may be the action of gravity on the free leg ends, and may also employ braking devices such as friction pads, countersprings, or pneumatic brakes to slow the descending motion out of safety considerations. Spring means may also be used mechanically assist the hybrid shopping basket/vehicle to "stand up". Gravity, spring force or mechanical means are used to ensure that the legs remain locked in the fully deployed, standing position while weight bearing and moving.

[0074] The cartoon illustrates an embodiment of the invention as a specialty adapted method of shopping. ~~In the method of shopping, the shopper carries the hybrid shopping basket/vehicle, triggeringly deploys the legs at any time and then wheels, trundles or rolls the basket and contents in any direction.~~ While carrying the hybrid shopping basket/vehicle, the shopper can trigger deployment of the legs and wheels, so that the basket can be freestandingly rested on the wheels. When the legs and wheels are deployed, the shopper can roll, trundle or wheel the shopping basket in the manner of a wheeled vehicle from place to place in any direction.

[0075] Note that in this embodiment the illustrated shopper is able to deploy the legs with his free hand while carrying the basket with his other hand by actuating a trigger positioned on the side of the basket. Alternatively, a shopper can manually extend the legs with one hand while holding the basket with the other. After extending the legs, the shopper is able to continue shopping. This shopper has added a baguette to the basket after extending the legs.



[0076] A body member, most preferably a hand or digit, is used to trigger deployment of the legs. When a hybrid shopping basket/vehicle is freely standing on its legs, three or more wheels are contacting the floor. One pair of casters in combination with a pair of fixed wheels at ~~the~~ rear one end, or a set of casters having an offset, generally vertical axle for steering (ie. a double-axle), are more sensitive in responding to changes in direction than four fixed wheels. Hybrid shopping basket/vehicles with casters may be trundled, a motion common during shopping. A hybrid shopping basket/vehicle is typically pushed or pulled by the basket rim or by a handle, but may be left at rest, freestanding and levelly supported on the floor.

[0080] Figure 3 describes the inner workings of the device of Figure 2 in exploded view, permitting a working hybrid shopping basket/vehicle to be constructed. From the top left, shown are a shopping basket (3.1) with integral molded quadrilateral frame and longitudinal beams (3.3) forming an undercarriage in the base (3.7) of the basket. At each end of the beams, pivot holes (3.8) are drilled accepting a front and back carriage axle (3.9) on which are mounted (with fasteners, 3.10) legs (3.4), shown here as tubular members, pre-assembled with casters (3.5) at their lowermost inferior aspect. In both beams, slotted tracks (3.11) are drawn, to be cut, molded or milled through the beams longitudinally and symmetrically to the right and left of center. The assembly of flying crossplates (3.12) captive and movable within the slotted tracks is shown for both ends of the cart. The crossplates function to link

the motion of a compound scissors tongs (3.13) mounted on central pivot head (3.14) with the longitudinal, reciprocal motion of the flying crossplates from end to end in the slotted tracks (3.11). Pivot pins (3.15) slidably link the end arms of the compound scissors tongs with the flying crossplates, in slots in the flying ~~crosspieces~~ crossplates to allow play for the lateral expansion and retraction of the scissors tongs during motion. On each end of the crossplates, an offset pivot strut, of which there are two, one inside and one outside of the nested legs (3.16; 3.17) affixed with rivets (3.18) or pivot pins (3.19) [and pivot stubs (3.20) when a slotted offset pivot strut is used], links the motion of the flying crossplates with the pivoting of the attached leg on the axles. A spring-mounted (3.21) sliding control arm (3.22) is captured on the central pivot head (3.14) between two spacer or lug washers (3.23) under the base. The outside end of the sliding control arm is formed in the fashion of a control handle (3.6), to be ~~pulled~~ pushed by the shopper to release and deploy the legs. The sliding control arm is folded, milled or cast so as to form a detent pin (3.24) shown here as a folded flap of material extending inferiorly from the sliding control arm. This detent pin has one mated detent pin receiver (shown here as a slot in the disk) on the center arm (3.25) of the compound scissors tongs (3.13). Note that the center arm rotates on the central pivot head (3.14). In this exploded view, the device is shown in a partial legs-down configuration. As the legs are extended manually, or by the weight and momentum of the falling legs, the center arm of the scissors tongs rotates counterclockwise (viewed from below) until the slot on the center arm disk is engaged by the detent pin (3.24) on the

spring-loaded (3.21) sliding control arm (3.22). A main spring (3.26) clasping two arms of the compound scissors tongs opposes the fall of the legs, slowing their descent. When the legs are no longer needed, the control handle (3.6) is ~~pulled~~ pushed again to disengage the detent pin (3.24) from its locking position, permitting the legs to be folded up against the undercarriage.

[0084] The legs then lock in place as the spring-loaded control arm (4.22) and detent pin (4.24) finds its second mated detent receiver slot (not shown, see Figure 9) corresponding to the radial position of the center arm of the scissors tongs with legs down. The position of the main spring may be crosslateral on the compound scissors tongs, accelerating the pivot motion of the legs into a locking position or parallel, or clasping from tip to tip of the scissors tongs jaws, serving as a counterspring to slow the descent of the legs after release. A stiffer spring may be used to hold the legs in the legs-up position until manually deployed, if desired.

[0087] Figure 5 is an end view of the legs (5.4) and casters (5.5) folded up against an undercarriage (5.3), (basket not shown). Visible as if in cross-section are the control arm (5.22), detent pin (5.24) and control handle (5.6). Secured by the center pivot head (5.14) to the undercarriage, the center arm (5.23) of the scissors tongs is visible between spacer washers (5.23), sliding control arm, and flying ~~crosspieces~~ crossplates (5.12). Also shown are the pivot pins of the flying ~~crosspieces~~ crossplates and the outside (5.16) and inside (5.17) offset pivot struts. Springs are not shown in this view.

[0088] Figure 6 is a side view of the legs and casters as assembled per Figure 4, again folded up. The slots for travel of the flying ~~crosspieces~~ crossplates along the undercarriage beam (6.3) are clearly visible. Only the outside offset pivot strut (left, 6.16) and pivot stub (6.20) is visible however, because the inside strut attaches to its flying crossplate (right, 6.12) inside the undercarriage beam. The fitting (6.10) securing the here left axle (7.9) is visible extending through the left leg (6.4).

[0089] Figure 7 is a companion side view to Figure 6, showing the leg motion after deployment. The legs are now in the fully deployed, legs-down position (arrows). Visible are the left and right axles (7.9[~~7.10~~]), the inside and outside offset pivot struts (7.16; 7.17), the slotted tracks (7.11) and captive flying crossplates (7.12), attaching pivot pin (7.19) and leg-mounted pivot stub (7.20). Because the right leg nests inside the left leg and behind the undercarriage support when folded, the right offset driving arm (7.17) is not fully visible in this view.

[0094] In Figure 10, another alternate release and deployment mechanism is developed in working drawings. The ~~exploded~~ plan view shows a gear box mounted on the base of the basket (10.7), with integral undercarriage beams (10.3) as shown in Figure 3, but with pinion gear (10.28), gear rack and gear arms (10.29; 10.30), flying crossplates (10.12), bolted or riveted (10.18) to the gear plate, outside and inside offset pivoting arms (10.16; 10.17), and

casters (10.5) mounted on square legs (10.4). Also shown is the control handle in a position (10.6) with legs down and locked by detent pin (10.24). Pushing on the control handle (arrow) releases of the legs from their fully upright, locked position (shown here), allowing them to be brought up against the undercarriage (as shown in Figure 11).

[0101] Based on the model, the weight of a fully assembled hybrid shopping basket/vehicle of the embodiment of Figure 4 was estimated to be 24 to 36 ounces (0.68 to 1.02 kg), depending on materials and estimated product time to repair or replacement, accounting for spring weakening and other factors in wear and tear. This compares to shopping baskets in commercial use which typically weigh 17 to 20 ounces (0.48 to 0.57 kg). A substantial component of the weight is in the rigid handle and basket rim, which may bear loads approaching 150 pounds (68.04 kg) failsafe. Rehrig has described ways to reinforce ~~[[this]]~~ the rim (US 4,865,338 and 4,946,059) of an injection molded basket and lighter alternative handles, such as straps, are in use, particularly for example in Europe. In contrast, shopping carts in commercial use often weigh between 20 and 75 pounds (9.07 and 34.02 kg), impractical for lightweight carrying.

\*\*\* \*\* END OF SECTION \*\*\* \*\*